

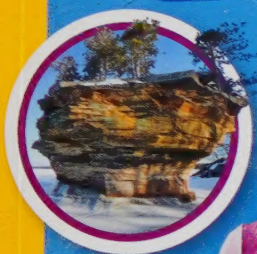
Over **1,000**
stickers!

 NATIONAL
GEOGRAPHIC
KIDS



ROCKS & MINERALS

STICKER ACTIVITY BOOK





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ROCKS & MINERALS

STICKER ACTIVITY BOOK



Pull out the sticker sheets and keep them by you as you complete each page.

There are also lots of extra stickers to use in this book or anywhere you want!



Have fun!

NATIONAL GEOGRAPHIC
Washington, D.C.

Consultant: Rhys Charles
Editorial, Design, and Production by
make believe ideas



Picture credits: All images Shutterstock unless noted as follows:
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Jody Dingle/Dreamstime.com: 33 b (Mount Rushmore); Lunamarina/Dreamstime.com: 30 tr
(arch); *Make Believe Ideas*: 3 bc (fork and spoon), 4 tr (amethyst), 4 bl (azurite), 4 bcl (pyrite),
5 mr (basalt), 5 bl (granite), 7 bl (calcite), 8 m (Earth cross section), 11 mr (conglomerate),
15 ml (purple geode), 36 tr (coal); Michal Baranski/Dreamstime.com: 15 m (rock);
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NationalGeographicStock.com: 12, 13 (cave); Jody Dingle/Dreamstime.com: 32, 33
(Mount Rushmore heads x6); Lunamarina/Dreamstime.com: 30, 31 (arch x2); *Make Believe
Ideas*: 2, 3 (watch), 2, 3 (sidewalk chalk), 2, 3 (drinking glass), 4, 5 (obsidian), 4, 5 (marble),
10, 11 (gabbro), 10, 11 (shale); Rodney Start/Museums Victoria/CC BY/collections
.museumvictoria.com.au/articles/3019: 19, 19 (gold); Royal Collection Trust/
© Her Majesty Queen Elizabeth II 2019: 22, 23 (jewels x5); Sun Chan/
iStock/Getty Images: 40 (tourmaline).



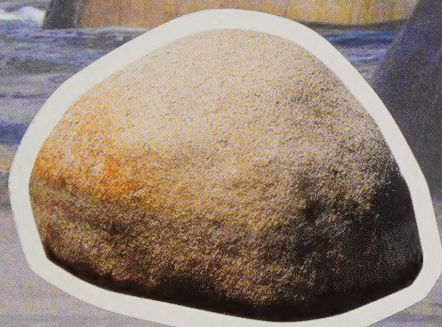
Rocks are everywhere in our world!

We can see rocks as pebbles in streams, tiny grains of sand on the beach, and huge cliffs in the mountains.

mountain



Sticker the rocks in the scene.



boulder



sand



pebbles



Sticker fish in the water.

Rocks and minerals are used to make all sorts of items. Did you know they are in jewelry, cell phones, and even diapers?

There can be as many as 70 different minerals that make up the parts of just one smartphone!



What else is made using rocks and minerals? Sticker the items to find out.



necklace



watch



toothpaste



sidewalk chalk



drinking glass



fork and spoon



pencil

Let's learn about **rocks** and **minerals**!

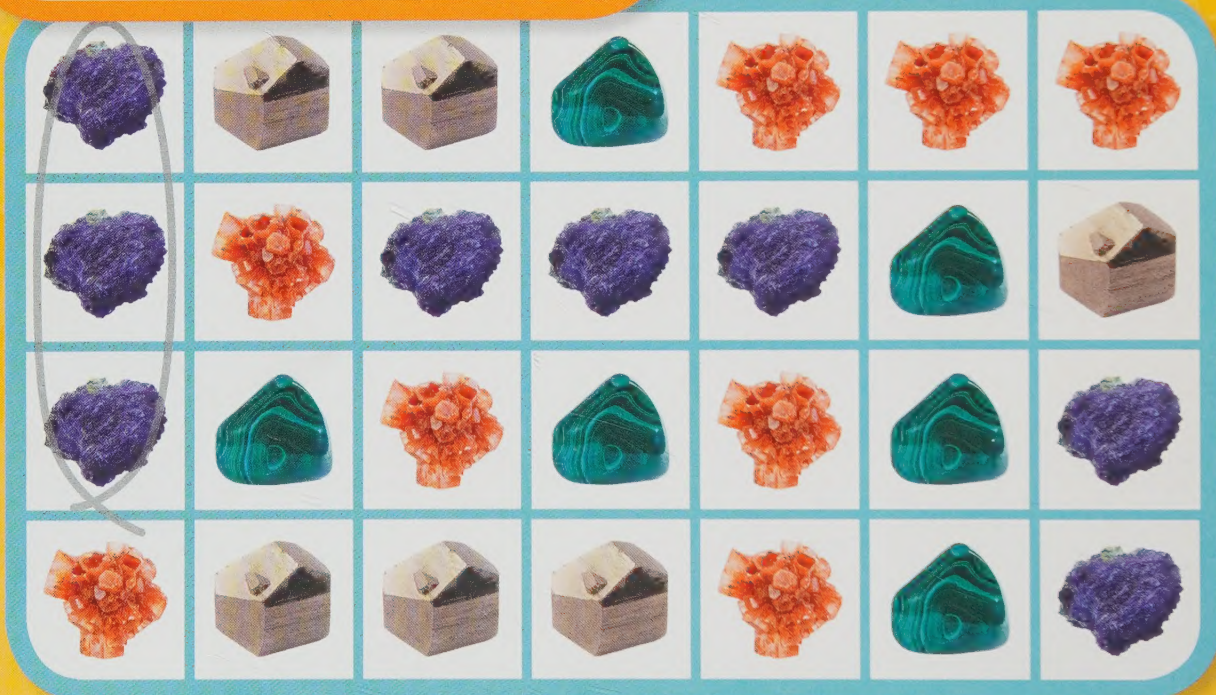
Minerals are solids formed naturally in the Earth. Each one has its own special crystal shape.

There are around 5,000 types of minerals, but only about 100 are commonly found.



amethyst

Circle each group of three matching minerals. The first one has been done for you.



azurite



pyrite



malachite



aragonite



Sticker the different rocks.



obsidian



marble



breccia

Rocks can
be made up
of different
minerals!



pumice



basalt

Granite is a type of rock made up of minerals,
including feldspar, mica, and quartz.



mica
(black specks)



feldspar
(pink specks)



quartz
(gray specks)

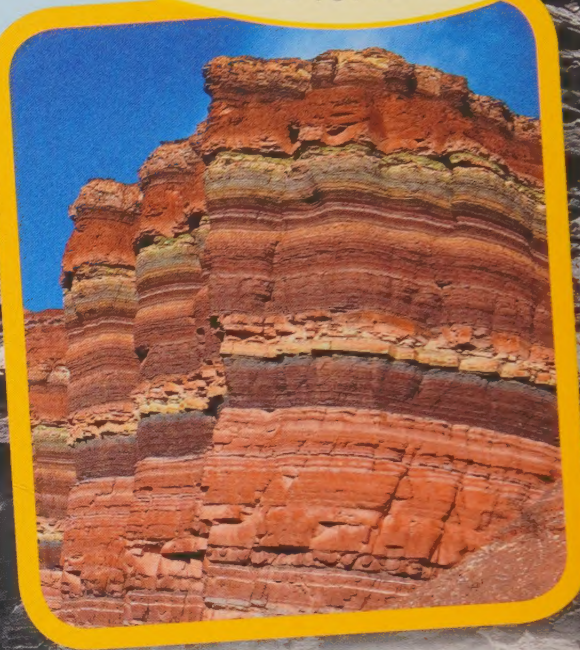


granite

A geologist studies rocks and minerals.

By studying rocks, a geologist can learn about how our world was formed.

A difference in the layers in rocks shows that something changed in the world when the rocks were forming.



layered rocks in Argentina



Sticker the geologist's tool kit.



Geologists have a special scale to find out how hard minerals are. They use a scratch test to rate the hardness of minerals.

On the scale, a mineral is ranked above any minerals that it can scratch but below any minerals that it cannot.

Using the scale, answer yes or no to these questions.

10 diamond (hardest)



9 corundum



8 topaz



7 quartz



6 orthoclase feldspar



5 apatite



4 fluorite



3 calcite



2 gypsum



1 talc (softest)



Is topaz harder than quartz?

YES!

Can gypsum scratch calcite?

NO!

Is talc a very soft mineral?

YES!

Can diamond scratch everything?

YES!

Earth is made of mostly rock.

Earth is one of four planets in the solar system that are made out of rock.

There are different layers inside Earth.

The crust is Earth's rocky shell.

The core is almost as hot as the surface of the sun!

outer core

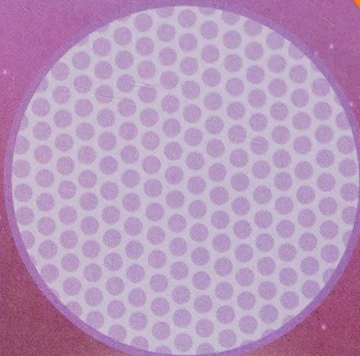
inner core

The mantle is the thickest layer and is full of minerals.

Sticker the other three planets made out of rock.



Mercury

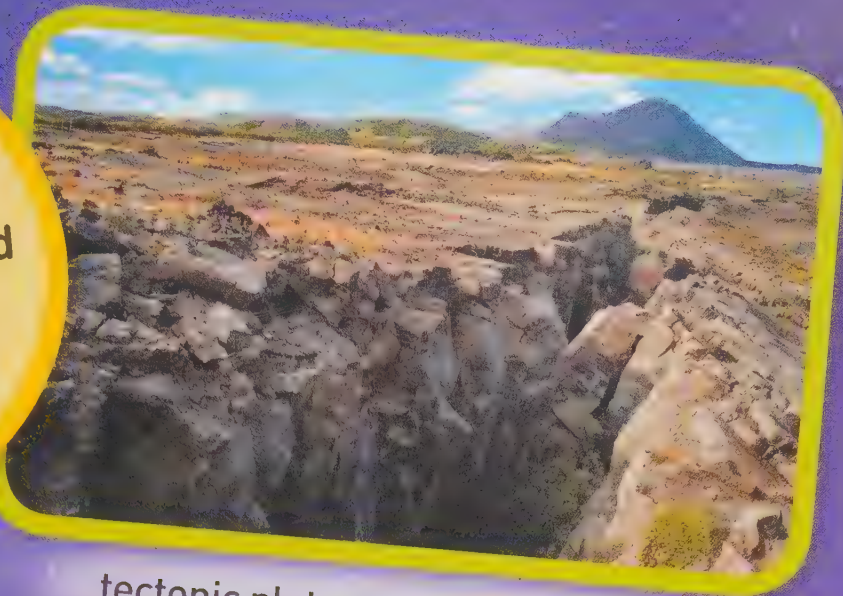


Venus



Mars

Earth's crust
is made of huge
slabs of rock called
tectonic plates.
They are always
moving.



tectonic plates parting in Iceland

When plates crash into each other, they
cause earthquakes and volcanic eruptions.



earthquake damage
in New Zealand

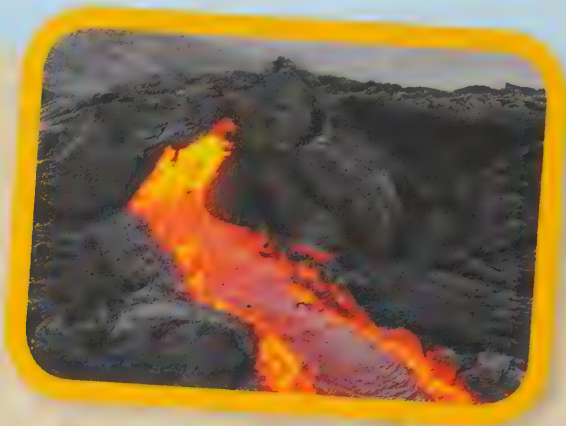
Color in the
erupting volcano.



Rocks **form** in three different ways.

1

Some rocks start as a hot liquid called magma that's found deep underground. When magma erupts onto Earth's surface, it is called lava.



lava flow

Lava and magma cool and harden into rocks.



gabbro



granite

2

Some rocks are changed into other rocks by intense heat and pressure underground. They start out as one kind of rock and change into new rocks and minerals!

Pressure can come from Earth's moving crust. It bends and twists rocks such as gneiss.



banded gneiss



slate



marble

3

Some rocks form at Earth's surface. Wind, water, and ice wear away at them and turn them into tiny pieces. The pieces travel into lakes and oceans.

The small pieces get pushed together over time into new rocks and minerals.



shale



sandstone



conglomerate

The Grand Canyon was formed by the Colorado River over thousands of years.



Spot six differences between these two pictures of the Grand Canyon.

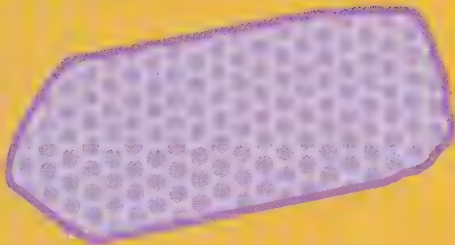
Crystals come in *different* shapes.

The largest natural crystals ever found are in the Cave of Crystals in Mexico. Some of them are 33 feet (10 m) tall—as tall as two giraffes!

Crystals can form when liquid rock cools slowly and hardens.

Crystals form into different shapes.

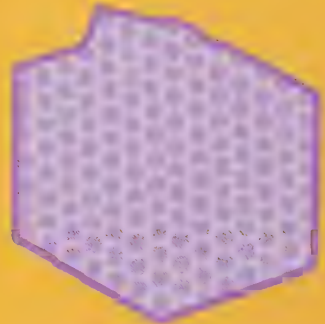
aquamarine



diamond



pyrite



Sticker each crystal above its matching 3D shape.



citrine quartz

Crystals come in all sorts of colors. Quartz can be red, yellow, green, blue—and even black!



rose quartz



Connect the dots to see more crystals in the cave.



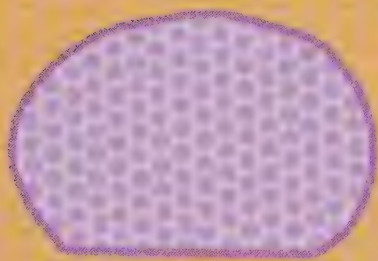
These crystals are taller than I am!

Geodes have a *surprise* inside!

From the outside, geodes look like common rocks. But they can be cracked open to show colorful crystals inside!



Geodes form when minerals grow inside hollow rocks.



quartz geode

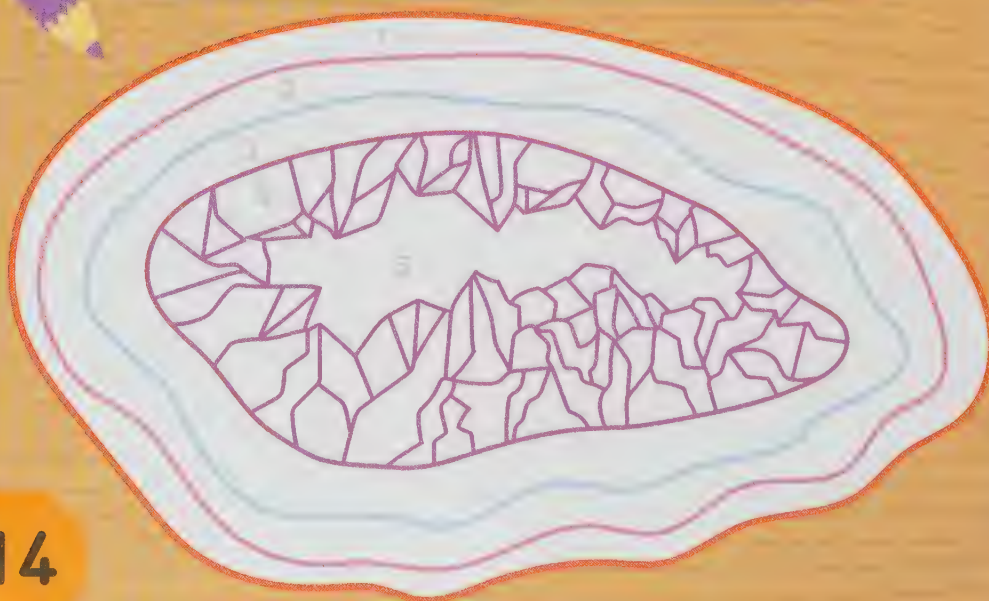


agate geode



amethyst geode

Color this geode using the key.



Key:

1

2

3

4

5

Precious metals are rare minerals.

Precious metals include gold, silver, and platinum. Because they are rare, they are worth lots of money!

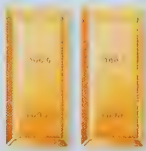
Banks keep bars of these precious metals.



Sticker the precious metals.



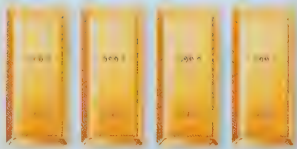
TOWN BANK



+



=



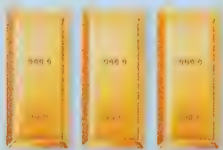
+



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Who has the most gold?
Add the bars to find out.

Precious metals are used in domed buildings, sports medals, electronics, solar panels, and more.

One of the most common uses of precious metals is in jewelry.



silver medal



Sticker the charms for this bracelet.

Sticker to finish the buildings.



Lots of people search for gold!



gold grains

Pure gold can be found as nuggets, crystals, flakes, grains, or veins in other rocks. It is very rare. People go searching for it!



gold nugget



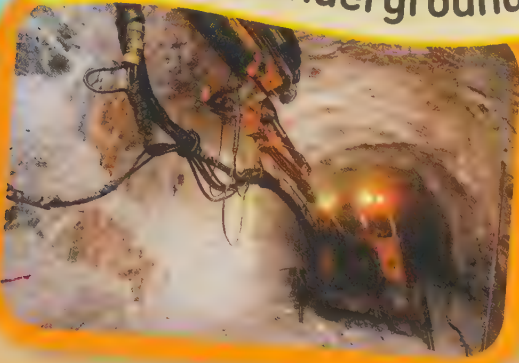
vein gold

When people pan for gold, they sift gold grains out of clay and sand.



Pan for gold! Circle and count the golden nuggets in the tray.

Professionals search for gold by mining underground.



drilling for gold

You struck gold!



finish

Find your way through the gold mine. Collect gold nuggets along the way.



Most finds are small, but the biggest nugget ever discovered weighed 170 pounds (77 kg)—about as much as an average-size man!



Gems are smooth and shiny stones.

In their natural form, gems look like rough, ordinary rocks. People cut and polish them to make them sparkle!

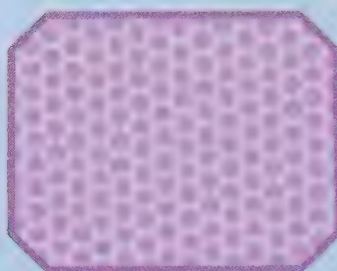


natural emeralds

Cut and polished gems can be rare and worth lots of money.



polished emerald



diamond



ruby

Sticker the missing stones, then match each rough stone with its cut and polished gem version.

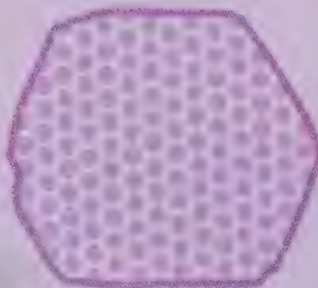
1



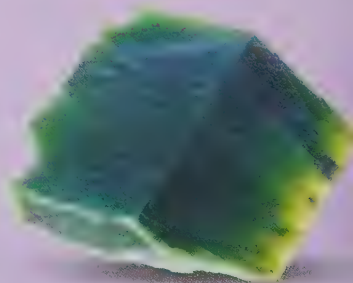
2



3



4





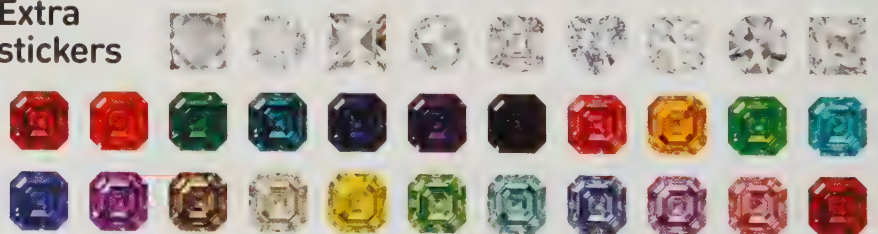
Stickers for pages 4 and 5



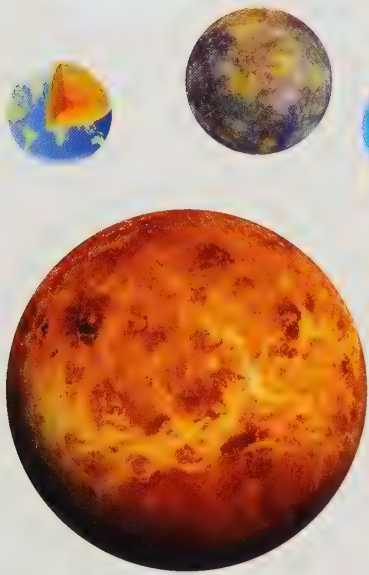
Stickers for pages 6 and 7



Extra
stickers



Stickers for pages 8 and 9



Stickers for pages 10 and 11



Stickers for pages 12 and 13



Stickers for pages 14 and 15



Extra stickers



Stickers for pages 16 and 17

A collection of various stickers arranged on a white background. The stickers include: a large golden dome with vertical lines; a dark, irregular rock with white mineral deposits; a small, light-colored shell; a tangled, brown root-like structure; a blue solar panel with a grid of white dots; and a brown, irregular rock. Each sticker has a small yellow label with text next to it. The text on the labels is: "The Golden Dome", "The Dark Rock", "The Small Shell", "The Tangled Root", "The Blue Solar Panel", and "The Brown Rock".

Stickers for pages 18 and 19

A row of five stickers. From left to right: a large, irregular gold nugget; a smaller, more crystalline gold nugget; a person in a hat and boots using a pickaxe to mine a rock; and another large, irregular gold nugget. There are also several small, irregular gold nugget stickers scattered around the larger ones.

Stickers for pages 20 and 21



Stickers for pages 22 and 23



Stickers for pages 22 and 23

A collection of jewelry stickers. At the top, a blue-bordered box contains a necklace with a large turquoise oval pendant, a matching turquoise beaded necklace, a matching turquoise beaded bracelet, and a pair of orange and brown earrings. Below this box are several other jewelry items: a green rectangular pendant, a blue and white pendant, a large clear faceted oval pendant, a large red and gold pendant, a large blue and white pendant, and a large black beetle brooch with gold-colored details.

Stickers for pages 28 and 29



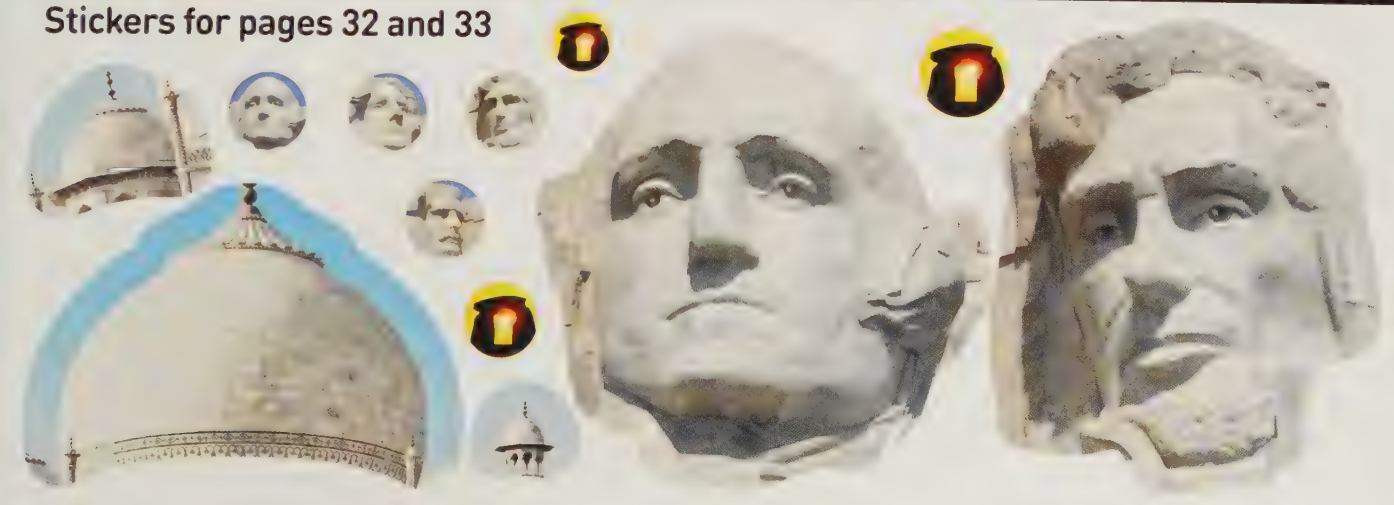
Stickers for pages 30 and 31



Extra stickers



Stickers for pages 32 and 33



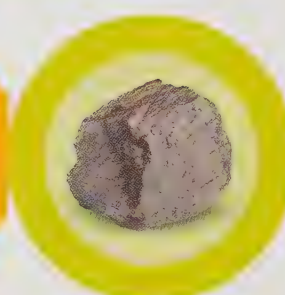
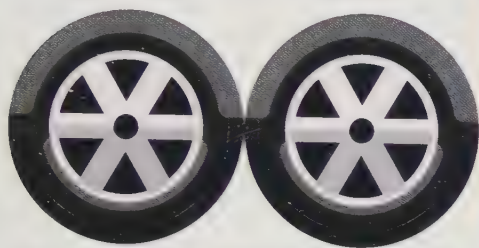
Stickers for pages 34 and 35



Extra stickers



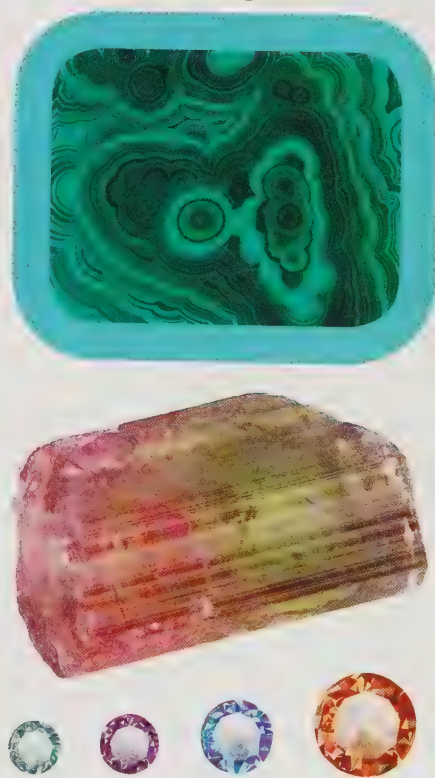
Stickers for pages 36 and 37



Stickers for pages 38 and 39



Stickers for page 40





cutting a diamond

A person who cuts and polishes rocks into gemstones is called a lapidary.



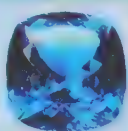
polishing amber



Complete the gem patterns.



sapphire



sapphire



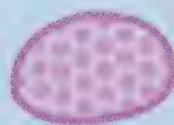
jade



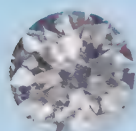
sapphire



sapphire



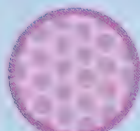
jade



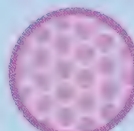
diamond



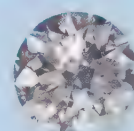
pearl



diamond



pearl



diamond



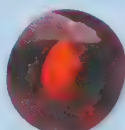
pearl



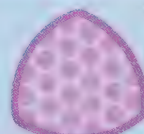
amethyst



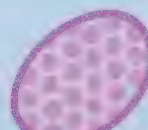
opal



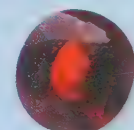
garnet



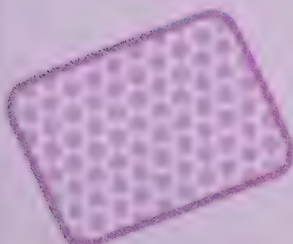
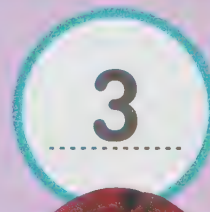
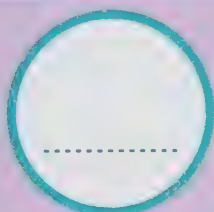
amethyst



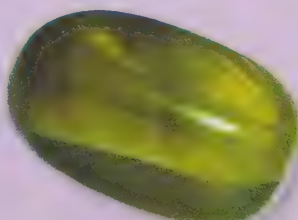
opal



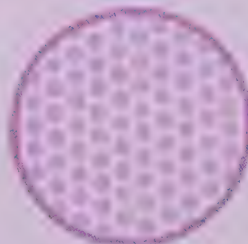
garnet



amber



jade



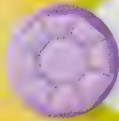
sapphire



garnet

Polished gems can be used in jewelry.

Jewels are polished gems. They have been used in jewelry for thousands of years.



Sticker this jewelry from around the world.



Native American turquoise



Egyptian amulet



jeweled Indian necklace

Jewelry includes necklaces, bracelets, rings, brooches, and more!



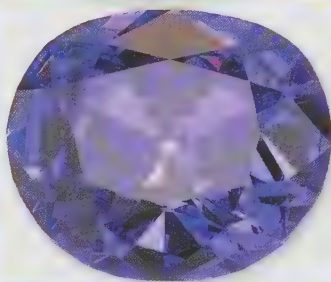
Design your own piece of jewelry. Decorate it with beautiful gems.

One of the crowns worn by royalty in Great Britain has almost 3,000 gems in it!

Imperial State Crown of Great Britain

The Hope Diamond is one of the most famous jewels in the world. It has traveled from India, to France, to England, to the United States!

Sticker the missing jewels in this crown.



Diamond is one of the hardest minerals.

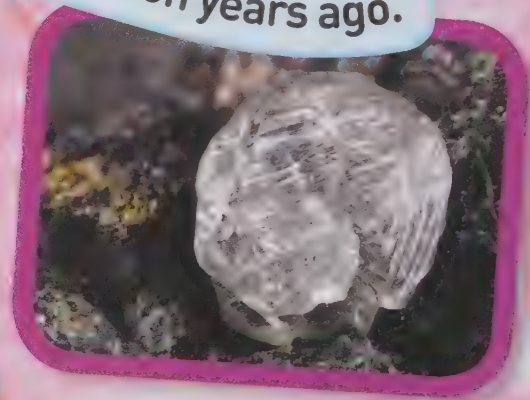
In nature,
diamonds are
raw and rough.
They change into the
diamonds we know
when cut and
polished.



cut diamonds

Diamonds formed deep underground
more than a billion years ago.

Spot and count
the diamonds.



natural diamond

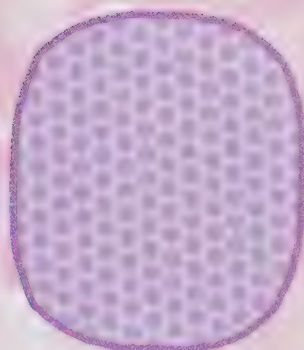


pink diamond

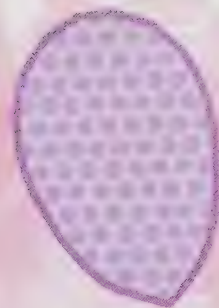
Diamonds come in different colors.
Diamonds with no color at all are
considered the most pure.



The Cullinan Diamond is the biggest diamond ever discovered. It weighed about 1.37 pounds (620 g). That's as heavy as a basketball!



Second Star of Africa



Lesser Star of Africa



Great Star of Africa

The Cullinan Diamond was cut into more than 100 smaller stones. Sticker the three biggest stones in actual size!

Which miner found the diamond?



Amazing **rocks** can form in **caves**.

The rocks are created from the mineral-rich water that drips in caves.

Rocks that hang down from a cave's roof are called stalactites.

So cool!

Sticker the stalagmites in this cave.

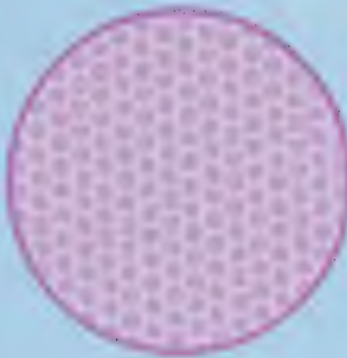
Rocks that rise up from a cave's floor are called stalagmites.



Some stalactites and stalagmites connect so that they go all the way from roof to floor! These are called pillars.

Other rock structures can take all sorts of different shapes in a cave.

Sticker and then draw a line to match each rock formation with its name.



soda
straws

curtains

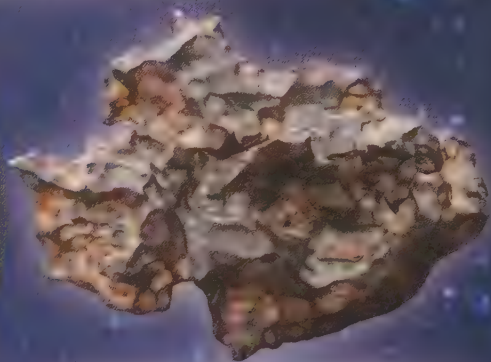
cave
pearls

Meteorites are rocks from space!



falling meteor

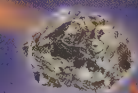
Most rocks on our planet were formed here, but some weren't. Meteorites fall to Earth from space!



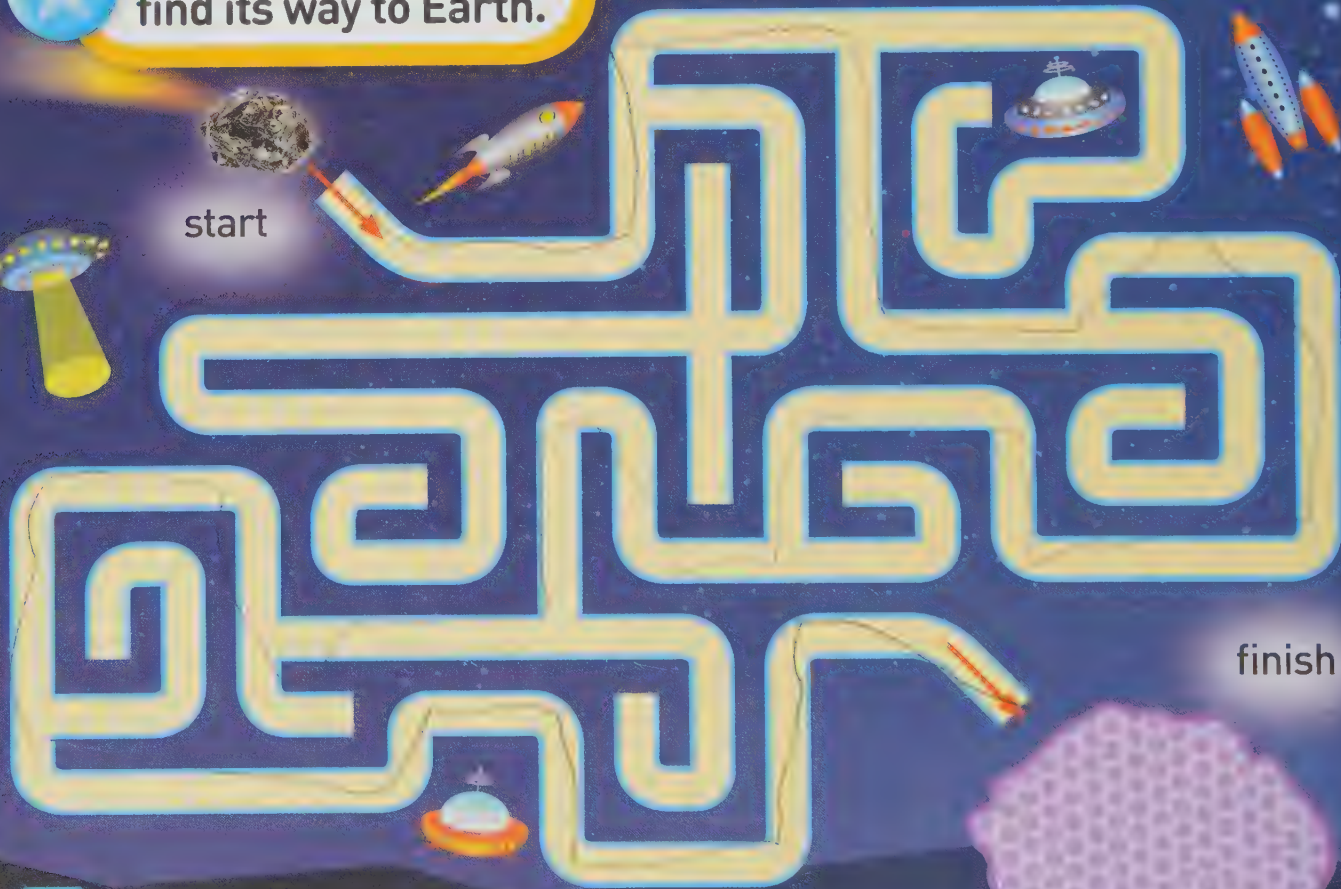
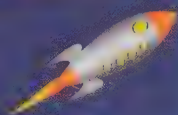
fragment of meteorite

Meteorites come from other planets or are pieces left from when the solar system formed.

★ Help the meteorite find its way to Earth.

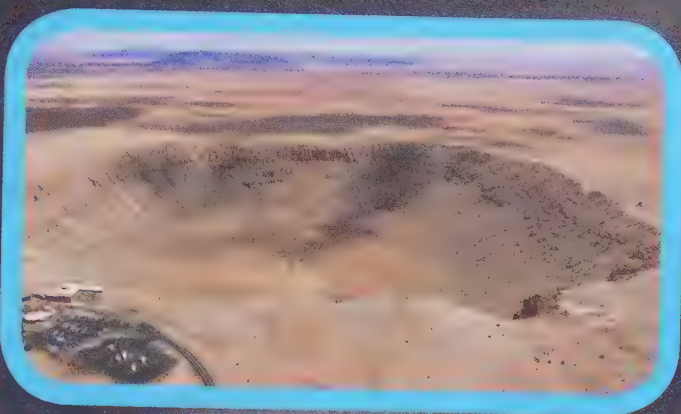


start



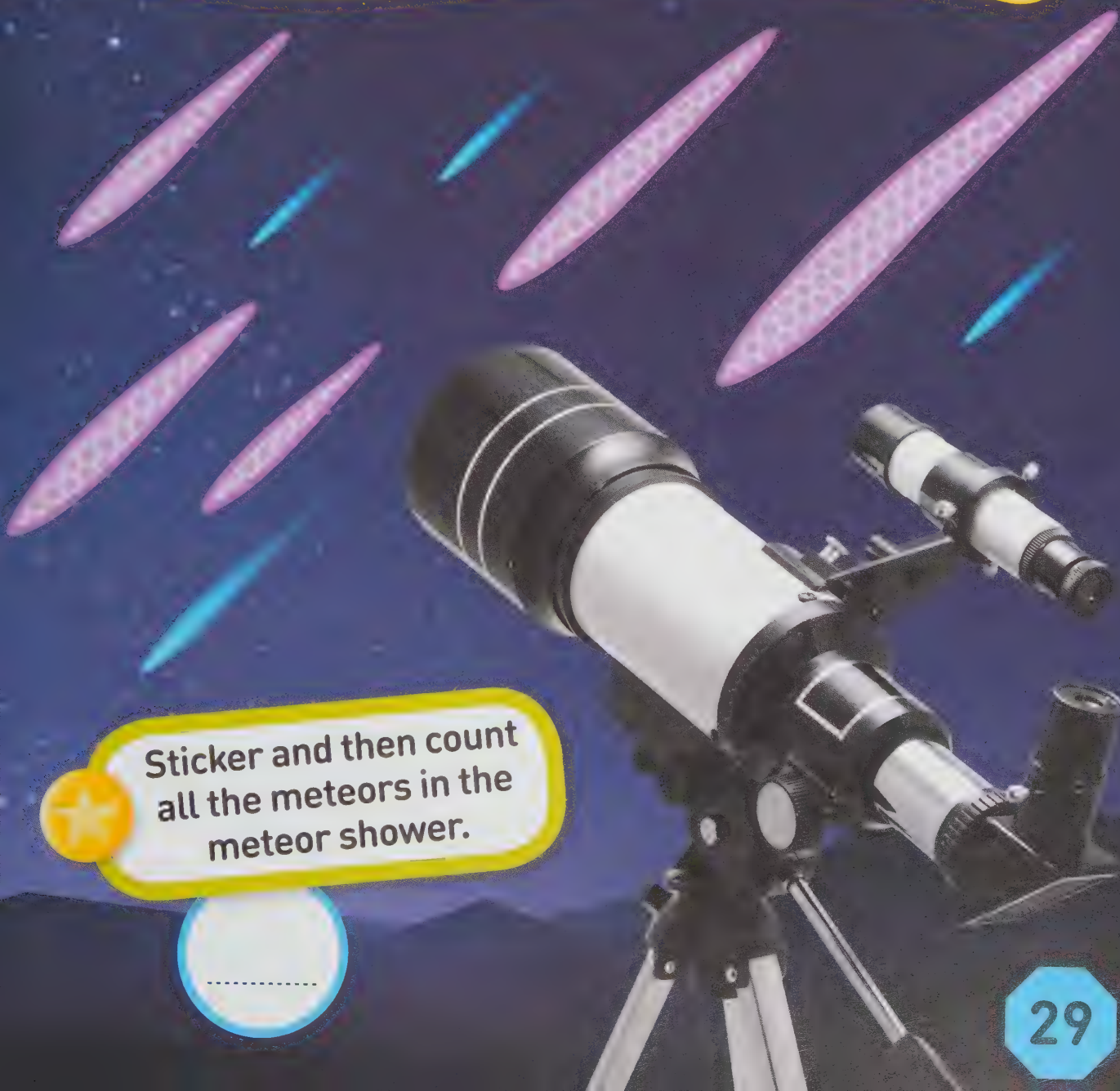
finish

Meteors
look like streaks
of light in the sky.
When they make it
all the way to Earth,
they're called
meteorites.



meteorite crater

A crater forms when a large meteorite hits Earth's surface.



Sticker and then count
all the meteors in the
meteor shower.

Rocks make amazing *natural* features.

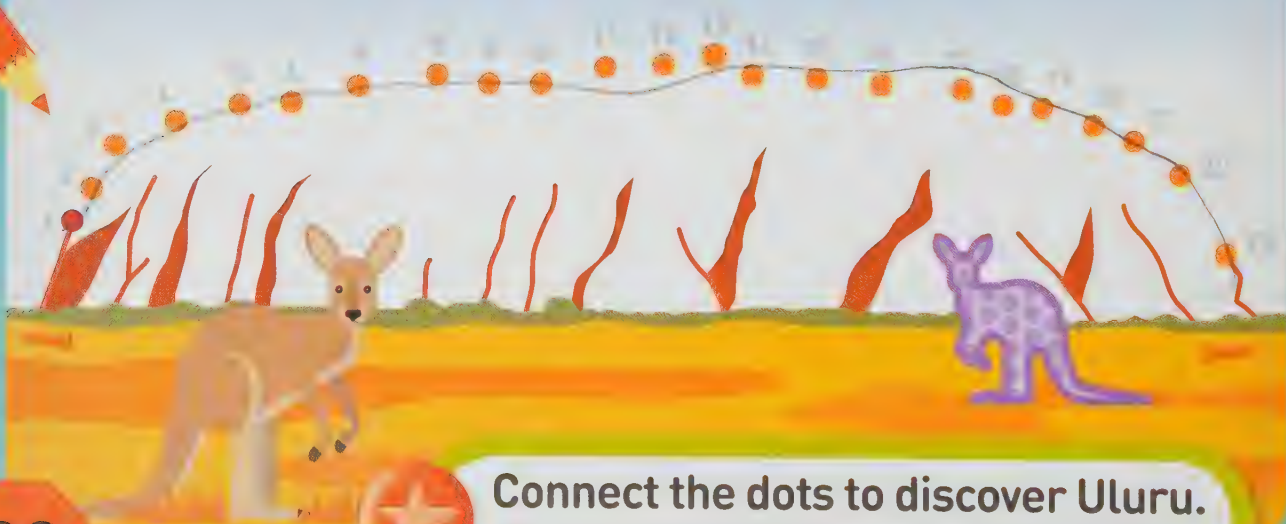
There are cool sites around the world made from natural rock formations.

Arches National Park in Utah, U.S.A., is made of sandstone that was sculpted by wind and rain over thousands of years.

Uluru in Australia is also made of sandstone.



Sticker to complete the puzzle of the arch.



Connect the dots to discover Uluru. Then color the large rock orange.



In Northern Ireland, the Giant's Causeway has more than 40,000 columns that formed from lava cooling into basalt.

Use the key to guide the explorers safely across the columns.



start



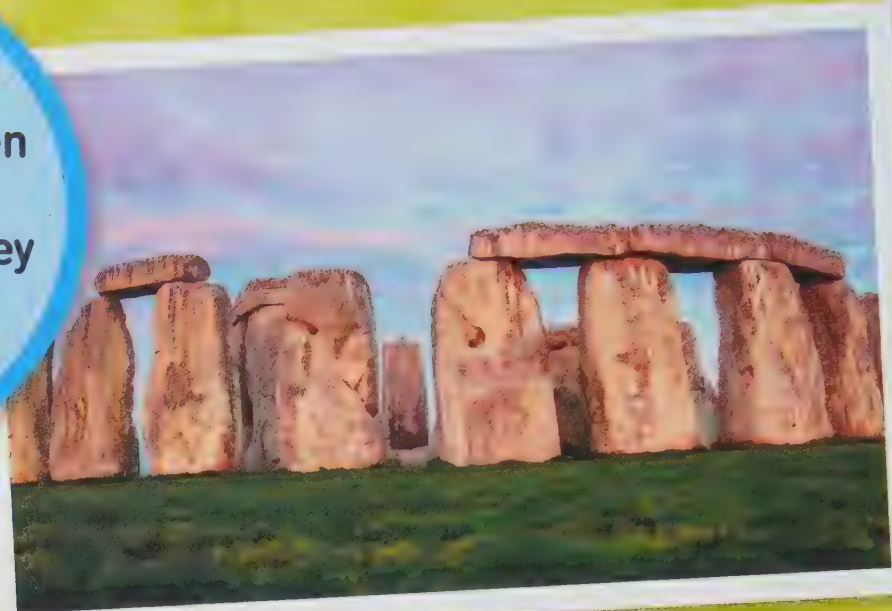
Key:



finish

Humans have **made** incredible rock features.

Some rock features have been built by humans. They are so big they can take years to complete.

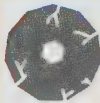


Stonehenge in England is a mysterious circle of standing sandstone and bluestone.

Scientists believe that people began building Stonehenge more than 5,000 years ago.



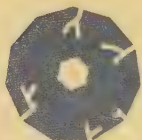
Use the code to discover how long it took to build Stonehenge.

									
0	1	2	3	4	5	6	7	8	9

This will take a while!



It took people around



..... , years to finish building Stonehenge.



In India, the beautiful Taj Mahal is covered in white marble.

The Taj Mahal took more than 22 years to build!

People used dynamite to carve four U.S. presidents into a granite mountain at Mount Rushmore, in South Dakota, U.S.A.

Sticker the missing heads!

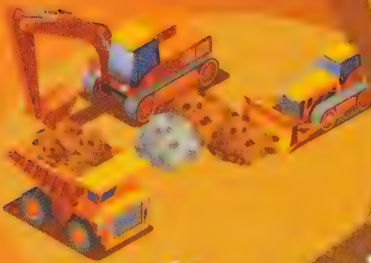
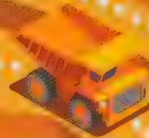
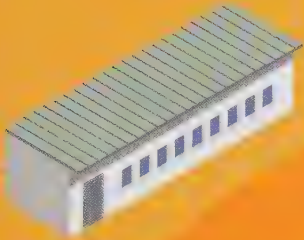
We find rocks in lots of different ways.



Mining means digging—or blasting!—underground to uncover rocks and minerals.

mining underground

The biggest hole in the world made for mining is Bingham Canyon Mine in Utah, U.S.A.



A quarry is a big open pit made to find rocks and minerals.

Trace the trail to help the truck mine the minerals in the quarry.



finding a fossil

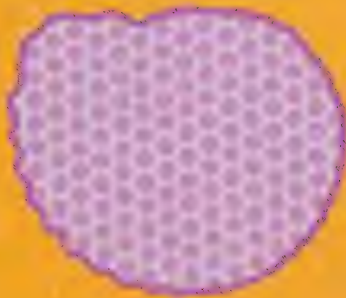
Fossils are found at Earth's surface. They are ancient remains preserved in stone, such as leaves, sea creatures, or footprints.



dinosaur footprint



plant fossil

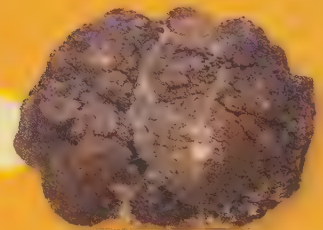


ammonite fossil



snail fossils

Even animal dung can be fossilized. It tells scientists what dinosaurs and other ancient creatures had for dinner!



coprolite

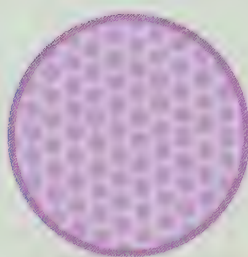
Use the grid to copy this fossil.



Rocks are helpful for people.

Rocks and minerals are used for many things in our lives.

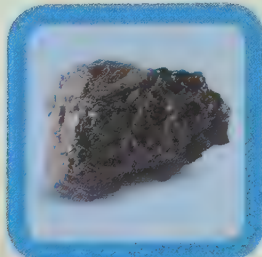
iron ore



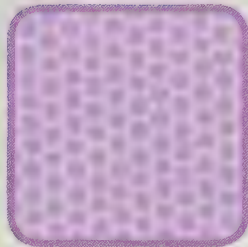
gold



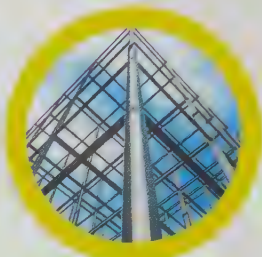
coal



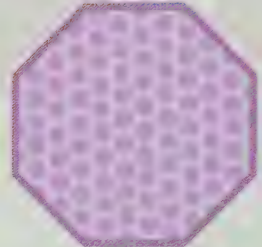
Sticker and then draw lines to match each rock with its use. Use the colors as clues.



power plant



steel for construction

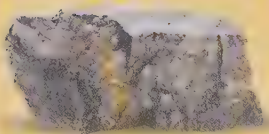


electronics

Many important metals come from rocks.

Search the grid to find the metals mined from rocks in the list below.

- aluminum
- copper
- iron
- silver
- zinc
- nickel



s	a	l	u	m	i	n	u	m
i	r	o	n	x	g	i	b	z
l	u	a	z	i	n	c	j	f
v	p	v	b	q	u	k	t	h
e	w	c	o	p	p	e	r	d
r	x	m	e	j	s	l	y	a

Fossil fuels are natural fuels taken out of rocks underground. They include coal, oil, and natural gas.

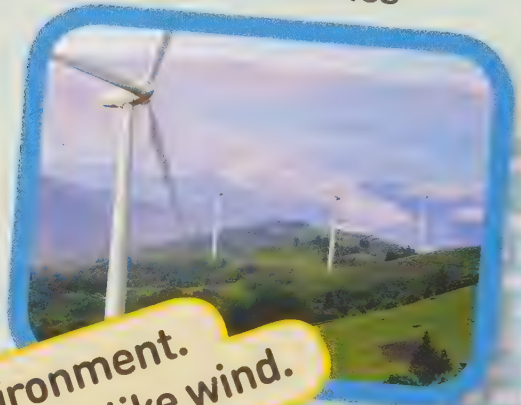


making energy from oil and gas

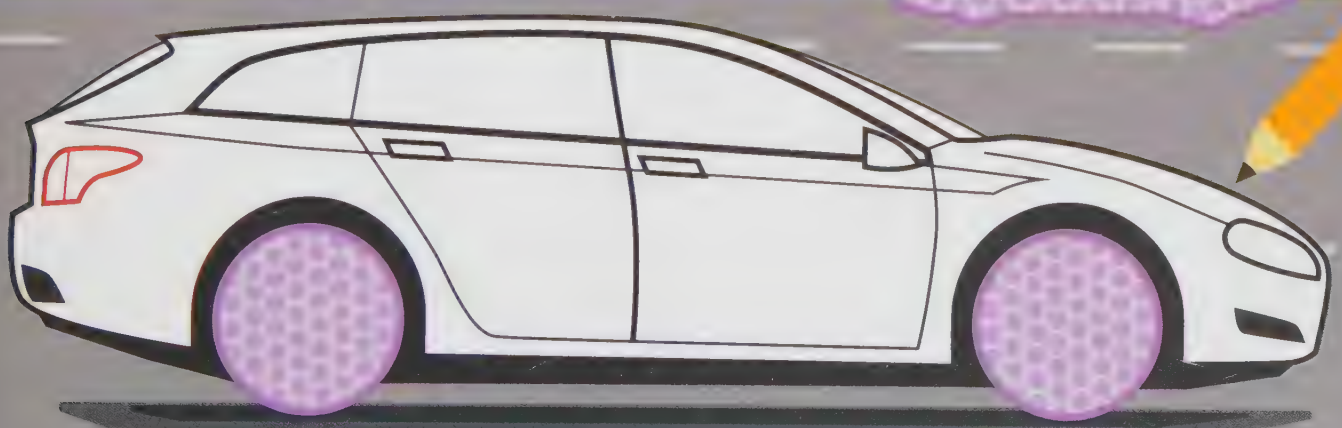


Using fossil fuels is one way to heat homes, generate electricity, and even power planes, trains, and cars.

wind turbines



Fossil fuels are not good for the environment. It is important to find other energy sources, like wind.



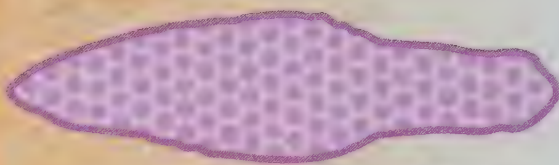
★ Sticker and color this cool car.

Building with rocks has changed over time.

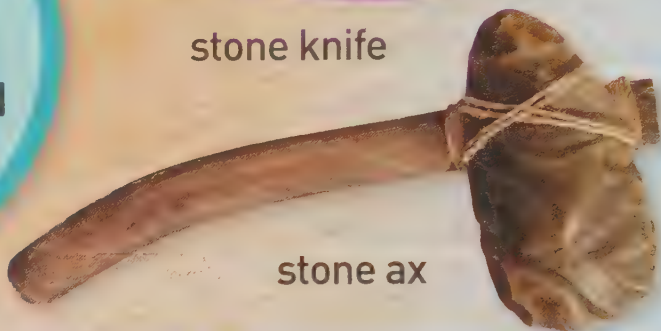


stone
arrowhead

Early humans
used rocks as
tools. This period
of time was called
the Stone Age.



stone knife



stone ax

Late in the Stone Age,
structures were built
from stone, too.



stone house



stone church

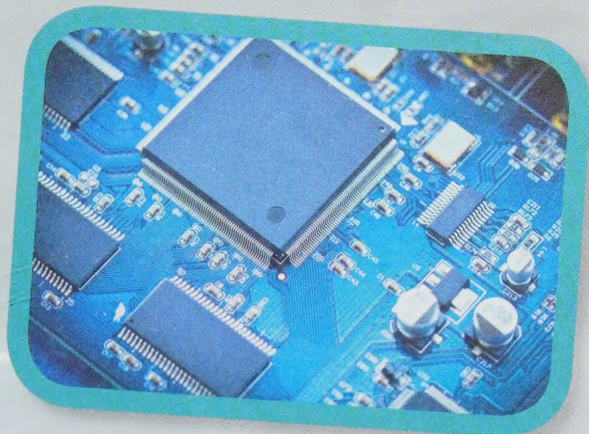
Sticker and then color the
stained glass in this church
window using the key.



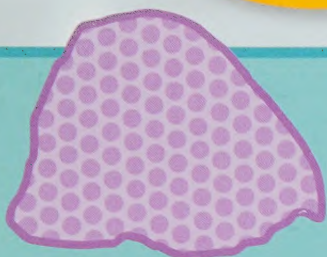
Key:

- 1
- 2
- 3
- 4
- 5
- 6

Today, rocks and minerals are used in new technology. Sometimes humans can make versions of rocks and minerals that are like the real thing.



Human-made sapphire is used in computer chips.



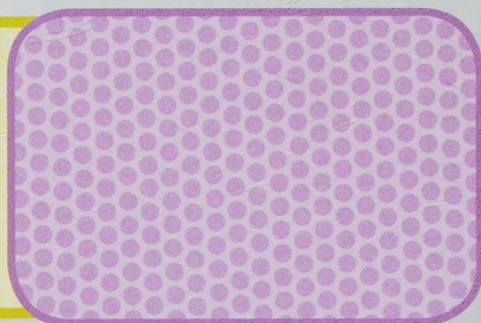
garnet

A laser made of garnet helps measure the distance to the moon.



copper

Copper taken from minerals is used to help power some kinds of trains.



Looking good!

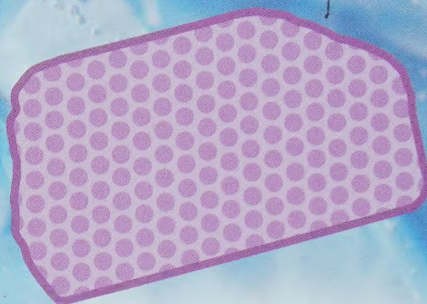


What else could rocks be used for in the future? Draw your invention here.

What are your favorite rocks and minerals?



granite



tourmaline



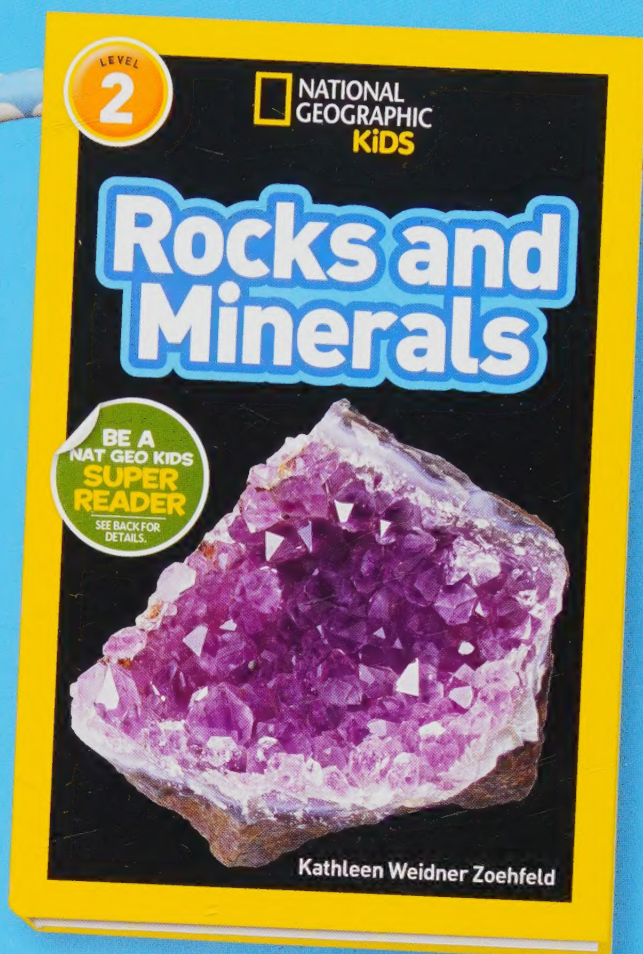
malachite

Draw and color the
rocks and minerals
you like the best.



DIG a little DEEPER!

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And for more fun ...



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